

On Terms

A Historical and Pedagogic Note on Establishing Operations

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Etymology is a form of behavior analysis. It historically analyzes a behavior product—a word. Moreover, etymology becomes a socially important analysis of behavior when a term's origins have been obscured and the evolution of the term's usage has not been recorded accurately. These errors can lead to confusion among those using the term and lead to unnecessary effort to clarify relations that have been previously clarified. Such may be the case with reports on the term *establishing operations* (Michael, 1982; Leigland, 1984). This paper augments Leigland (1984) by noting a reference to establishing operations that predates Michael (1982) and by suggesting that the evolution of the term as it appears in the literature may be used as a pedagogic device.

At a weekly research meeting, we were discussing the establishing operation (Michael, 1982) and its relevance to a particular study we were conducting. The second author mentioned that he had seen the term used in Keller and Schoenfeld's (1950) *Principles of Psychology*. Upon looking up the term in their chapter on social behavior (pp. 352-400) we discovered that Keller and Schoenfeld (1950) used it as part of a description of motivation (p. 373). Moreover, in an earlier chapter on motivation (pp. 262-325), they used the term "establishing operations" within their definition of a drive. Here, they discussed operations that increase the strength of a response and that also establish the effectiveness of a reinforcer, noting that "depriving an animal of food is a way of increasing the strength of a conditioned reflex like bar-pressing . . .," and that ". . . food-deprivation is itself prerequisite for using food as reinforcement—that a reinforcer is such by

virtue of some operation that makes it so" (p. 264). They subsequently referred to these operations as "establishing operations" (p. 269), and they illustrated a number of them (e.g., food and sexual deprivation, pp. 264-274). Keller and Schoenfeld emphasized that establishing operations and drives are not synonymous. According to their definition, *drive* refers to a change in response strength attributable to some establishing operation; it encompasses both the motivating condition and its effects.

Michael (1982) has also developed an establishing operation concept and defined establishing operations in a similar manner: (1) They alter the momentary effectiveness of a given class of reinforcing events, and (2) they evoke behavior that in the past has been strengthened by that class of reinforcing events (pp. 150-151). In addition, Michael (1982) precisely distinguished the establishing operation from discriminative stimuli (S^D). The presence of an S^D is always correlated with a higher frequency of reinforcement for a relevant response than the absence of an S^D , whereas an establishing operation is not correlated with a differential frequency of reinforcement for a certain response. Both establishing operations and discriminative stimuli evoke behavior, but the establishing operation evokes behavior "because it changes what functions as reinforcement rather than because it is correlated with a higher frequency of reinforcement" (Michael, 1982, p. 152). For example, after watching a TV commercial for a new toy, a child begs his parents to buy him a toy, and they do so. If there has been no discriminative relation between commercials and begging (i.e., begging has produced toys and other objects and events regardless

of the presence or absence of TV commercials), then the commercial is not an S^D. Instead, in this case, the commercial *established* the toy as a reinforcer and evoked begging, qualifying it as an establishing operation or stimulus.

Essentially, both Michael (1982) and Keller and Schoenfeld (1950) distinguished establishing operations from other behavioral processes, and both references gave similar examples of establishing operations. The primary difference between the two definitions of establishing operation concerns the use of the drive concept. Keller and Schoenfeld (1950) stated that establishing operations were part of a relation called a drive, although they were careful to avoid mentalistic interpretations by defining drives in terms of specific behavior-environment relations. Michael (1982), however, preferred to avoid the term "drive" altogether because it might evoke the mentalism associated with traditional drive theories.

Clarifying the relation between Keller and Schoenfeld (1950) and Michael (1982) might be particularly useful to

those teaching the concept of motivation. Presenting students with an evolution of how motivation has been described by operant psychologists may facilitate the students' behavior with respect to motivational concepts. One could discuss traditional drive theories, then present Keller and Schoenfeld's use of the establishing operation as a step toward eliminating unobservable hypothetical constructs, and finally present Michael's proposal which completely eliminates drive theory terminology and clarifies the distinction between establishing operations and discriminative stimuli. This forms a nice continuum of operant reflections on motivational variables.

REFERENCES

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